

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of

Robert CHASSAGNON et al.

Serial No.: 10/578,119

Filed: May 1, 2006

For: Tread for Pneumatic Tires

Examiner: Scott, Angela C.

Group Art: 1767

Confirmation No.: 5029

**Mail Stop Appeal Brief - Patents**

Commissioner for Patents

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**APPELLANT'S REPLY BRIEF**

SIR:

This is Appellants' Reply Brief in response to the Examiner's Answer mailed May 23, 2011, pursuant to 37 C.F.R. § 41.41.

The Examiner maintains the rejection of claims 1, 4-10, 13, 14, 20 and 21 under 35 U.S.C. 103 § (a) as obvious over Hopkins (US 2002/0198305) in view of Vasseur (WO 02/088238) and Simonot (US2004/0030017). (For convenience and consistency with the Examiner's approach, the citations below for Vasseur are from its English language equivalent US 2004/0127617.)

In response to Appellants' Appeal Brief, at pages 4-8, section 10 of the Examiner's Answer, the Examiner explains why the rejections should be maintained. Appellants have previously provided in their Appeal Brief six independent reasons why the Examiner has failed to properly apply the pertinent laws, rules, and guidance in applying the prior art against the present

application. It is believed that the reasons listed in Appellants' previously-submitted Appeal Brief are still valid. Therefore, Appellants hereby incorporate the entire content of Appellants' previously-submitted Appeal Brief.

In this Reply Brief, Appellants address a few additional statements made by the Examiner in section 10 of the Examiner's Answer.

1. "Passenger car" recited in claim 1 of the present application is a meaningful limitation and should not be ignored

Claim 1 of the present application, the only independent claim, recites a passenger car tire comprising a tread, wherein said tread comprises a rubber composition, said composition comprising a diene elastomer, silica in an amount of greater than 50 phr, a coupling agent and a plasticising agent, wherein the diene elastomer comprises a styrene butadiene rubber copolymer and 40 to 80 phr of butyl rubber, and the plasticising agent comprises 10 to 50 phr of an unsaturated (C<sub>12</sub>-C<sub>22</sub>) fatty acid triester of glycerol.

Among other things, Appellant has previously explained that modification of Hopkins based on Vasseur and Simonot as proposed by the Examiner would not produce the invention of claim 1 and its dependent claims, which are directed to a passenger car tire, because Hopkins does not teach a tire tread composition for a passenger car.

In response, the Examiner acknowledges, "[I]t is true that Hopkins does not explicitly teach a tire tread for a passenger car as an end use of its composition." See page 5, first paragraph of the Examiner's Answer. However, the Examiner argues that the claim limitation of a passenger car is an intended end use of the tread claimed and is of no significance to claim construction. See page 5, first paragraph of the Examiner's Answer.

Appellant has previously cited various legal authorities and provided a number of reasons that “passenger car” recited in claim 1 should be construed as a meaningful limitation. *See* pages 4-7 of Appellant’s previously-submitted Appeal Brief. For example, Appellants have explained in detail that the specification of the present application, the common knowledge in the art, and the references cited by the Examiner have all made it clear that a passenger car and a heavy vehicle have substantially different requirements for tire and tire tread. Therefore, the limitation of “passenger car” imparts a meaningful limitation to the tire described in claim 1 of the present application and consequently should not be ignored. However, the Examiner fails to fully address Appellant’s arguments in the Appeal Brief.

2. There is no evidence that Hopkins’ composition is capable of being used as a tire tread for a passenger car

The Examiner repeatedly argues that Hopkins’ composition for truck and bus tire tread is capable of being used for tire treads of passenger cars because passenger cars use the same roads as trucks and buses. *See, e.g.,* page 5, first to second paragraphs, and pages 5-6, bridging paragraph of the Examiner’s Answer. This argument has no merit for at least the reasons presented in Appellant’s previously-submitted Appeal Brief, which are provided below for the Board’s convenience.

It is well known that passenger cars and heavy vehicles, such as trucks, are substantially different in many aspects, including size, weight, speed, and conditions to be used. For example, 1) a heavy vehicle relies more on its weight to provide tire tread traction control over the ground than passenger cars; 2) heavy vehicles, including tires and tire treads thereof, are designed to have the capability to travel on irregular grounds, such as soft farm grounds and non-paved bumpy roads, whereas passenger cars are not. Therefore, heavy vehicles often require that their

tires be designed to better absorb shock than passenger car tires; 3) due to their differences in size, weight, speed, etc., light passenger cars and heavy vehicles have substantially different requirements for the properties of their tires and tire treads with regard to rolling resistance, grip performance, wet traction control, etc.

In fact, each of the references cited by the Examiner has made it clear that a tire and a tire tread for a passenger car are different from those of a heavy vehicle. *See, e.g.,* Hopkins, paragraphs 0002, 0084, claim 12; Vasseur, Abstract, paragraphs 0002-0003; Simonot, paragraphs 0082 and 0083; Sandstrom (U.S. Patent Application Publication No. 2003/0089438, which was previously cited by the Examiner in, e.g., Office Action dated February 11, 2008), Abstract, paragraphs 0002-0008 and 0020. Indeed, because of the substantial differences between tires (and tire treads) used for heavy vehicles and those used for passenger cars, each of the references cited by the Examiner explains in detail whether the tire tread discussed therein is for a light vehicle or a heavy vehicle. Otherwise, were the Examiner's position correct, the detailed explanation provided in the cited references regarding vehicle types for which the tire treads are suitable would be superfluous.

Based on the foregoing, the Examiner's conclusion that Hopkins' composition for truck and bus tire treads is capable of being used for tire treads of passenger cars merely because the passenger cars use the same roads as trucks and buses is not supported. Rather, the evidence in the record shows that the composition for a truck (or bus) tire or tire tread is probably not suitable for a passenger car tire or tire tread.

3. The differences between truck and bus tires as opposed to passenger car tires are relevant to the patentability of the claims of the present application

At page 5, second paragraph of the Examiner's Answer, the Examiner argues that the differences between truck and bus tires as opposed to passenger car tires are irrelevant to the patentability of the claims of the present application, because "this case is concerned with the tread composition." This argument has no merit because claim 1 has explicitly recited a "car tire." See claim 1 ("A passenger car tire comprising a tread . . .") (emphasis added.))

Moreover, as stated above, in addition to the differences between truck and bus tires as opposed to passenger car tires, Appellants' previously-submitted Appeal Brief has also discussed in detail the differences between truck and bus tire treads as opposed to passenger car tire treads. See also page 6, second full paragraph to pages 6-7, bridging paragraph of Appellants' previously-submitted Appeal Brief.

4. The Examiner fails to fully address Appellants' argument that there is no apparent reason for a person of ordinary skill in the art to modify the tire treads of Hopkins, which are designed for trucks, based on the relevant teachings of Vasseur and Simonot, which are all directed to tire treads for passenger cars

At pages 7-10 of Appellant's previously-submitted Appeal Brief, Appellant provides various reasons as to why a person of ordinary skill in the art would not modify the tire treads of Hopkins, which are designed for trucks, based on the relevant teachings of Vasseur and Simonot, which are all directed to tire treads for passenger cars. But the Examiner fails to fully address the various arguments presented in Appellant's previously-submitted Appeal Brief. More importantly, the Examiner again fails to appreciate the substantial differences between tires (and tire treads) of heavy vehicles and those of passenger cars.

Specifically, Vasseur is directed to tires of light passenger vehicles based on highly unsaturated diene elastomers, which are apparently designed for running on roads at a very high speed. *See* Vasseur, paragraphs 0002, 0034, and 0044. Therefore, as disclosed in Vasseur, there is a need to improve the grip performance of tires of a passenger car on dry or damp ground. *See* Vasseur, paragraph 0005. Vasseur then discloses the use of a plasticizer comprising a glycerol oleic acid trimester in a rubber composition based on at least one highly unsaturated diene elastomers, to improve the grip performance of tires of a passenger car on dry or damp ground.

On the other hand, as stated above, Hopkins is directed to an elastomeric composition which is based on natural rubbers, butyl rubbers, and is useful for truck tire treads, among other applications, such as shoes, rubber diaphragms. *See*, e.g., paragraphs 0002-0004, 0007-0011, and 0084. Due to their lower speed and much heavier weight compared to light passenger cars, trucks do not have the same concern or demand for high gripability, as do the light passenger cars in Vasseur. Indeed, as evidenced by Sandstrom, which was cited by the Examiner, it is well known that heavy vehicles rely more on their weight to provide tire tread traction over the ground, in contrast to passenger tires. Neither Hopkins nor Vasseur teaches, discloses or suggests any need to improve the gripability of the tire of a heavy vehicle. Therefore, based on Hopkins and Vasseur, there is no reason for a person of ordinary skill in art to add the plasticizer of Vasseur to the rubber composition of Hopkins, which is substantially different from that of Vasseur.

The Examiner fails to consider adverse consequences resulting from her proposed modification based on the warning of Hopkins. Specifically, at paragraph 0002, Hopkins cautions, **“Many properties are desirable in a rubber used in a vehicle tire tread and generally improvements in one property are achieved at the expense of other properties.”**

(Emphasis added.) Different types of vehicles have different specific requirements for various desired properties, such as grip performance and wear characteristics. Because improvements in one property are achieved at the expense of other properties, a vehicle tire cannot have all the desired properties at their best. In other words, there must be some compromises made among the many desired properties. But one type of vehicle tire may tolerate certain compromised desired property more than a different type of vehicle. As suggested in Hopkins, improving the gripability of the tire of a heavy vehicle may render as unacceptable other properties of the tire of the heavy vehicle, such as abrasion resistance and other mechanical properties. Therefore, it would not have been obvious for a person of ordinary skill in the art to add the plasticizer of Vasseur to Hopkins' rubber composition, which is substantially different from that of Vasseur. In fact, a person of ordinary skill in the art would be discouraged to modify Hopkins' rubber composition for truck tires based on the teaching of Vasseur, as proposed by the Examiner, due to the concern that another important property would be compromised and fail to satisfy the specific requirements for truck treads, which are different from the specific requirements of passenger car tire treads.

5. Hopkins' disclosure of a processing oil and a lubricant does not provide a person of ordinary skill in the art reasonable expectation of success of adding a plasticising agent comprising 10 to 50 phr of an unsaturated (C<sub>12</sub>-C<sub>22</sub>) fatty acid triester of glycerol into Hopkins' composition

At pages 5-6, bridging paragraph and page 7 of the Examiner's Answer, the Examiner argues that because Hopkins discloses the use of a processing oil and a lubricant, a person of ordinary skill in the art would have reasonable expectation of success of adding the specific plasticizing agent of Vasseur, i.e., a plasticising agent comprising 10 to 50 phr of an unsaturated (C<sub>12</sub>-C<sub>22</sub>) fatty acid triester of glycerol, to Hopkins' composition. The Examiner also asserts that a processing oil or a lubricant serves the same purpose as the plasticizing agent. The Examiner's

argument has no merit. Neither a processing oil nor a lubricant serves the same purpose as a plasticizer recited in claim 1 of the present application. As indicated in Hopkins, a processing oil or lubricant is used to aid the process of manufacturing the final product. *See* paragraphs 0078, 0082 and 0083. In comparison, the plasticizer disclosed in Vasseur is used to improve the properties of the final product, such as grip performance of a tire tread. Also, compounds used as process oil or lubricant, such as stearic acid and aromatic oils disclosed at paragraphs 0078 and 0083 of Hopkins, are often different types of compounds from fatty acid triester of glycerol, which is used in Vasseur as a plasticizer.

More importantly, as noted above, the Examiner ignores the substantial differences between tire treads of light vehicles disclosed in Vasseur and tire treads of heavy vehicles disclosed in Hopkins. A person of ordinary skill in the art would reasonably expect that modifying the composition of Hopkins might in actuality adversely affect or interfere with some critical properties of Hopkins' heavy vehicle tire treads.

Therefore, a person of ordinary skill in the art would not have a reasonable expectation of success for the modification as proposed by the Examiner.

#### 6. Hopkins teaches away from the use of 40 to 80 phr of butyl rubber in its composition

At page 7, second full paragraph of the Examiner's Answer, the Examiner argues that Hopkins teaches at Table 1 the use of 50 and 75 phr of butyl rubber and therefore discloses the use of 40 to 80 phr of butyl rubber as recited in claim 1 of the present application. This argument has no merit. In contrast, Hopkins teaches that the use of more than 30% of butyl rubber would have an adverse effect on abrasion resistance. *See* paragraph 0109 and Fig. 1. Hopkins lists in Table 1, among other compositions, two compositions respectively comprising

50 and 75 phr of butyl rubber, to show the adverse effect of more than 30% butyl rubber. As shown clearly in Fig. 1, the abrasion resistance loss increases significantly when the amount of butyl rubber exceeds 30phr, e.g., 50 phr or 75 phr. In other words, Hopkins teaches away from the use of 40 to 80 phr of butyl rubber. Therefore, even if a person of ordinary skill in the art would modify other aspects of Hopkins' composition based on Vasseur and Simonot, as suggested by the Examiner, s/he would still not arrive at a rubber composition comprising 40 to 80 phr of butyl rubber.

### **CONCLUSION**

For the foregoing reasons, it is respectfully submitted that the Examiner's Answer fails to show that the presently pending claims of the present application are unpatentable over the art of record, and the Examiner's rejections should be reversed.

Respectfully submitted,  
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